

Study Guide

For use with pages 345–349

GOAL Use equations to solve percent problems.**THE PERCENT EQUATION**You can represent “ a is p percent of b ” using the equation

$$a = p\% \cdot b$$

where a is a part of the base b and $p\%$ is the percent.**EXAMPLE 1** Finding a Part of a Base

In a recent year, about 7.3% of United States residents were 10 to 14 years old. The total United States resident population that year was 284,797,000. About how many United States residents were 10 to 14 years old?

Solution

To find the number of residents that were 10 to 14 years old, use the percent equation.

$$a = p\% \cdot b$$

Write percent equation.

$$= 7.3\% \cdot 284,797,000$$

Substitute 7.3 for p and 284,797,000 for b .

$$= 0.073 \cdot 284,797,000$$

Write percent as a decimal.

$$= 20,790,181$$

Multiply.

Answer: About 20,790,181 United States residents were 10 to 14 years old.

Exercises for Example 1

Use the percent equation to answer the question.

- What number is 30% of 60?
- What number is 14% of 25?
- What number is 0.5% of 6?
- What number is 345% of 2?

EXAMPLE 2 Finding a Commission

A computer salesperson earns a 5.8% commission on every computer package sold. The salesperson sells a computer package for \$3500. What is the commission?

Solution

$$a = p\% \cdot b$$

Write percent equation.

$$= 5.8\% \cdot 3500$$

Substitute 5.8 for p and 3500 for b .

$$= 0.058 \cdot 3500$$

Write percent as a decimal.

$$= 203$$

Multiply.

Answer: The salesperson's commission is \$203.

Study Guide

For use with pages 345–349

Exercises for Example 2

5. In Example 2, find the commission if a computer package is sold for \$2450.
6. In Example 2, find the commission if a computer package is sold for \$900.

EXAMPLE 3 Finding a Percent

What percent of 600 is 25?

Solution

$$a = p\% \cdot b$$

Write percent equation.

$$25 = p\% \cdot 600$$

Substitute 25 for a and 600 for b .

$$0.041\overline{6} = p\%$$

Divide each side by 600.

$$4.1\overline{6}\% = p\%$$

Write decimal as a percent.

Answer: 25 is $4.1\overline{6}\%$ of 600.

EXAMPLE 4 Finding a Base

In a recent year in the United States, 1,744,548 people ages 16 to 24 who had graduated from high school within the previous 12 months were enrolled in college. The college enrollment rate for the graduates was 63.3%. How many 16-to 24-year-old high school graduates in the previous 12 months were there?

Solution

$$a = p\% \cdot b$$

Write percent equation.

$$1,744,548 = 63.3\% \cdot b$$

Substitute 1,744,548 for a and 63.3 for p .

$$1,744,548 = 0.633 \cdot b$$

Write percent as a decimal.

$$2,756,000 = b$$

Divide each side by 0.633.

Answer: There were 2,756,000 graduates.

Exercises for Examples 3 and 4

Use the percent equation to answer the question.

7. What percent of 8 is 1?
8. What percent of 20 is 35?
9. 60 is 3% of what number?
10. 51.75 is 115% of what number?